

# INDEX

## RUBBER CHEMISTRY AND TECHNOLOGY

### VOLUME 39, 1966

#### AUTHOR INDEX

	Issue and Page		Issue and Page
ABE, M., Y. MURAKAMI, AND H. FUJITA, Sedimentation analysis of <i>cis</i> -1,4-polybutadiene in a theta solvent, 3-pentanone, at 103° C .....	(3)609	BRENNAN, J. J., SEE DANNENBERG, E. M. ....	(3)597
AMATO, F., SEE BRUZZONE, M. ....	(5)1593	BRUZZONE, M., G. CORRADINI, AND F. AMATO, Technological characteristics of polyisoprenes with different 1,4- <i>cis</i> contents .....	(5)1593 (2)397
ANGOVE, S. N., E. S. GRAHAM, G. HILDITCH, R. A. STEWART, AND F. L. WHITE, High quality foams from NTR latex .....	(3)755	BULLMAN, G. W., SEE ROTH, F. L. ....	
ANSPACH, W. F., Hydrofluorocarbon high-temperature integral fuel tank sealants .....	(4-2)1200	BURROW, S. P., (Mrs.) A. PETERLIN, AND D. T. TURNER, Upturn effect in the non-Newtonian viscosity of polymer solutions .....	(3)631
ATKINS, J. H., AND B. B. BOONSTRA, A Measurement of carbon black pellet quality and its significance .....	(4-1)1081	BUSHICK, R. D., Ethylene propylene copolymers I. Monomer reactivity ratios .....	(2)241
BACKUS, J. K., SEE SAUNDERS, J. H. ....	(2)461	CAIN, M. E., SEE BELL, C. L. M. ....	(5)1565
BALDI, L., SEE BALLINI, G. ....	(3)521	CALDWELL, J. R., SEE PERRY, K. P. ....	(4-1)1008
BALDYGA, H., AND H. C. JONES, Effect of zinc oxide and titanium dioxide on heat and light stability of ethylene propylene terpolymers .....	(4-2)1347	CARPENTER, A. W., Obituary of Arthur Edgar Juve .....	(1)xxv
BALLINI, G., L. BALDI, AND E. DIGIULIO, Use of <sup>14</sup> C tagged cumyl peroxide to study peroxide vulcanization of ethylene propylene copolymers ..	(3)521	CARR, R. L. K., SEE DOREFMAN, E. ....	(4-2)1175
BANERJEE, S., SEE JOSE, K. A. ....	(3)763	CARWILE, L. C., AND H. J. HOGE, Thermal conductivity of soft vulcanized natural rubber, selected values .....	(1)126
BARRALL, E. M., R. S. PORTER, AND J. F. JOHNSON, Characterization of block and random ethylene copolymers by differential thermal analysis ..	(5)1513	CASE, L. C., AND R. V. WARGIN, Elastomer behavior IV. The loop structures of elastomer networks .....	(5)1489
BATEMAN, L., AND B. C. SEKHAR, Significance of PRI in raw and vulcanized natural rubber .....	(5)1608	CHANDLER, L. A., SEE COLLINS, E. A. ....	(2)193
BEAN, C. T., SEE DOREFMAN, E. ....	(4-2)1175	CHASSET, R., AND P. THIEUX, Viscoelastic relaxation of rubber vulcanizates between the glass transition and equilibrium .....	(4-1)870
BELL, C. L. M., Oxidation scission of natural polyisoprenes in solution ....	(3)530	CHILDERS, C. W., SEE KRAUS, G. ....	(5)1530
—, Oxidative stress relaxation of natural rubber vulcanizates at high strains ..	(5)1577	CIFERRI, A., SEE SMITH, K. J., JR. ....	(3)685
BELL, C. L. M., M. E. CAIN, D. J. ELLIOTT, AND B. SAVILLE, Recent studies in the aging of natural rubber ..	(5)1565	COLE, H. M., D. L. PETTERSON, V. A. SIJAKA, AND D. S. SMITH, Identification and determination of polymers in compounded cured rubber stocks by pyrolysis and two-channel gas chromatography .....	(2)259
BELLANCA, C. L., AND I. O. SALVER, Effect of liquid rocket fuels and oxidizers on elastomeric O-ring seals ...	(4-2)1215	COLLINS, E. A., AND L. A. CHANDLER, Temperature and rate effects on crystalline transitions in <i>cis</i> -1,4 polybutadiene as measured by DTA ....	(2)193 (5)clxxii
BELLINI, G., SEE DIGIULIO, E. ....	(3)726	Correction .....	
BINDER, J. L., Infrared spectra of polybutadiene .....	(4-1)945	COOPER, W., D. E. EAVES, M. E. TUNNICLIFFE, AND G. VAUGHAN, Structure of ethylene propylene dicyclopentadiene terpolymers .....	(4-1)964
BISIO, A. L., SEE SHEEHAN, C. J. ....	(1)149	CORRADINI, P., Conformation of stereoregular polydienes in the crystal state .....	(1)114
BLATZ, P. J., SEE KAWABATA, S. ....	(4-1)923	CORRADINI, G., SEE BRUZZONE, M. ....	(5)1593
BLY, R. M., P. E. KIENER, AND B. A. FRIES, Near-infrared analysis of ethylene propylene copolymers .....	(4-1)956	CORISH, P. J., AND M. E. TUNNICLIFFE, A critical evaluation of infrared methods for determination of the E/P ratio of ethylene propylene rubbers .....	(2)226
BOENIG, H. V., C. B. MILLER, AND J. E. SHOTTAUER, Tack in urethan elastomers .....	(4-1)974	COTTEN, G. R., Carbon black reinforcement in pre-swollen rubbers .....	(5)1553
BOONE, J. L., AND S. A. BRALEY, Resistance of silicone rubbers to body fluids .....	(4-2)1293	COX, W. L., AND C. R. PARKS, Effect of curing systems on fatigue of natural rubber vulcanizates .....	(3)785
BOONSTRA, B. B., SEE ATKINS, J. H. ....	(4-1)1081		
BRALEY, S. A., SEE BOONE, J. L. ....	(4-2)1293		

# INDEX

## RUBBER CHEMISTRY AND TECHNOLOGY

### VOLUME 39, 1966

#### AUTHOR INDEX

	Issue and Page		Issue and Page
ABE, M., Y. MURAKAMI, AND H. FUJITA, Sedimentation analysis of <i>cis</i> -1,4-polybutadiene in a theta solvent, 3-pentanone, at 103° C .....	(3)609	BRENNAN, J. J., SEE DANNENBERG, E. M. ....	(3)597
AMATO, F., SEE BRUZZONE, M. ....	(5)1593	BRUZZONE, M., G. CORRADINI, AND F. AMATO, Technological characteristics of polyisoprenes with different 1,4- <i>cis</i> contents .....	(5)1593 (2)397
ANGOVE, S. N., E. S. GRAHAM, G. HILDITCH, R. A. STEWART, AND F. L. WHITE, High quality foams from NTR latex .....	(3)755	BULLMAN, G. W., SEE ROTH, F. L. ....	
ANSPACH, W. F., Hydrofluorocarbon high-temperature integral fuel tank sealants .....	(4-2)1200	BURROW, S. P., (Mrs.) A. PETERLIN, AND D. T. TURNER, Upturn effect in the non-Newtonian viscosity of polymer solutions .....	(3)631
ATKINS, J. H., AND B. B. BOONSTRA, A Measurement of carbon black pellet quality and its significance .....	(4-1)1081	BUSHICK, R. D., Ethylene propylene copolymers I. Monomer reactivity ratios .....	(2)241
BACKUS, J. K., SEE SAUNDERS, J. H. ....	(2)461	CAIN, M. E., SEE BELL, C. L. M. ....	(5)1565
BALDI, L., SEE BALLINI, G. ....	(3)521	CALDWELL, J. R., SEE PERRY, K. P. ....	(4-1)1008
BALDYGA, H., AND H. C. JONES, Effect of zinc oxide and titanium dioxide on heat and light stability of ethylene propylene terpolymers .....	(4-2)1347	CARPENTER, A. W., Obituary of Arthur Edgar Juve .....	(1)xxv
BALLINI, G., L. BALDI, AND E. DIGIULIO, Use of <sup>14</sup> C tagged cumyl peroxide to study peroxide vulcanization of ethylene propylene copolymers ..	(3)521	CARR, R. L. K., SEE DOREFMAN, E. ....	(4-2)1175
BANERJEE, S., SEE JOSE, K. A. ....	(3)763	CARWILE, L. C., AND H. J. HOGE, Thermal conductivity of soft vulcanized natural rubber, selected values .....	(1)126
BARRALL, E. M., R. S. PORTER, AND J. F. JOHNSON, Characterization of block and random ethylene copolymers by differential thermal analysis ..	(5)1513	CASE, L. C., AND R. V. WARGIN, Elastomer behavior IV. The loop structures of elastomer networks .....	(5)1489
BATEMAN, L., AND B. C. SEKHAR, Significance of PRI in raw and vulcanized natural rubber .....	(5)1608	CHANDLER, L. A., SEE COLLINS, E. A. ....	(2)193
BEAN, C. T., SEE DOREFMAN, E. ....	(4-2)1175	CHASSET, R., AND P. THIEION, Viscoelastic relaxation of rubber vulcanizates between the glass transition and equilibrium .....	(4-1)870
BELL, C. L. M., Oxidation scission of natural polyisoprenes in solution ....	(3)530	CHILDERS, C. W., SEE KRAUS, G. ....	(5)1530
—, Oxidative stress relaxation of natural rubber vulcanizates at high strains ..	(5)1577	CIFERRI, A., SEE SMITH, K. J., JR. ....	(3)685
BELL, C. L. M., M. E. CAIN, D. J. ELLIOTT, AND B. SAVILLE, Recent studies in the aging of natural rubber ..	(5)1565	COLE, H. M., D. L. PETTERSON, V. A. SIJAKA, AND D. S. SMITH, Identification and determination of polymers in compounded cured rubber stocks by pyrolysis and two-channel gas chromatography .....	(2)259
BELLANCA, C. L., AND I. O. SALVER, Effect of liquid rocket fuels and oxidizers on elastomeric O-ring seals ...	(4-2)1215	COLLINS, E. A., AND L. A. CHANDLER, Temperature and rate effects on crystalline transitions in <i>cis</i> -1,4 polybutadiene as measured by DTA ....	(2)193 (5)clxxii
BELLINI, G., SEE DIGIULIO, E. ....	(3)726	COOPER, W., D. E. EAVES, M. E. TUNNICLIFFE, AND G. VAUGHAN, Structure of ethylene propylene dicyclopentadiene terpolymers .....	(4-1)964
BINDER, J. L., Infrared spectra of polybutadiene .....	(4-1)945	CORRADINI, P., Conformation of stereoregular polydienes in the crystal state .....	(1)114
BISIO, A. L., SEE SHEEHAN, C. J. ....	(4-1)923	CORRADINI, G., SEE BRUZZONE, M. ....	(5)1593
BLATZ, P. J., SEE KAWABATA, S. ....		CORISH, P. J., AND M. E. TUNNICLIFFE, A critical evaluation of infrared methods for determination of the E/P ratio of ethylene propylene rubbers .....	(2)226
BLY, R. M., P. E. KIENER, AND B. A. FRIES, Near-infrared analysis of ethylene propylene copolymers .....	(4-1)956	COTTEN, G. R., Carbon black reinforcement in pre-swollen rubbers .....	(5)1553
BOENIG, H. V., C. B. MILLER, AND J. E. SHOTTAUER, Tack in urethan elastomers .....	(4-1)974	COX, W. L., AND C. R. PARKS, Effect of curing systems on fatigue of natural rubber vulcanizates .....	(3)785
BOONE, J. L., AND S. A. BRALEY, Resistance of silicone rubbers to body fluids .....	(4-2)1293		
BOONSTRA, B. B., SEE ATKINS, J. H. ....	(4-1)1081		
BRALEY, S. A., SEE BOONE, J. L. ....	(4-2)1293		

- |   | Issue<br>and<br>Page |   | Issue<br>and<br>Page |
|---|----------------------|---|----------------------|
| CRITCHFIELD, F. E., SEE MAGNUS, G.  | (4-2)1328            | GREGG, R. A., SEE LITTLE, J. R.   | (4-1)1089            |
| DARHAD, S., SEE NATTA, G.   | (5)1667              | GRIFFIN, W. R., Triazine elastomers   | (4-2)1178            |
| DANNENBERG, E. M., AND J. J. BRENNAN, Strain energy as a criterion for stress-softening in carbon-black-filled vulcanizates   | (3)597               | GRIFFIS, C. B., AND M. C. HENRY, Nitroso rubbers  | (3)481               |
| DANON, J., SEE GOLUB, M. A.   | (4-1)992             | GRODE, G. A., SEE FAIB, R. D.   | (4-2)1288            |
| DiBENEDETTO, A. T., SEE PAUL, D. R.   | (5)1496              | GROSCH, K. A., AND A. SCHALLMACH, Relation between abrasion and strength of rubber  | (2)287               |
| DICKIE, R. A., SEE FERRY, J. D.   | (4-1)897             | —, AND P. McL. SWIFT, Oil extended natural rubber for tire treads   | (5)1656              |
| DiGIULIO, E., G. BALLINI, AND G. V. GIANDINOTO, Elongation at break as a measure of crosslink density in vulcanized elastomers  | (3)726               | GROTEN, B., Application of pyrolysis and gas chromatography to polymer characterization   | (2)248               |
| —, SEE BALLINI, G.  | (3)521               | HAMMETT, R. E., R. E. WINGARD, AND J. E. LAND, Growth rate of natural rubber crystallites   | (2)206               |
| DOBSON, G. R., AND M. GORDON, Theory of branching processes and statistics of rubber elasticity   | (5)1472              | HARLING, D. F., SEE HECKMAN, F. A.  | (1)1                 |
| DOGADKIN, B. A., SEE TARASOVA, Z. N.  | (5)1625              | HARWOOD, J. A. C., L. MULLINS, AND A. R. PAYNE, Stress softening in natural rubber vulcanizates part II. Stress softening effects in pure gum and filler loaded rubbers | (4-1)814             |
| DORFMAN, E., W. E. EMERSON, R. L. K. CARR, AND C. T. BEAN, A synthesis of poly(2,4-perfluoroalkylene-6-perfluoroalkyltriazine)s   | (4-2)1175            | —, AND A. R. PAYNE, Stress softening in natural rubber vulcanizates III. Carbon black vulcanizates  | (5)1544              |
| DUNLEAVY, R. A., SEE MAGNUS, G.   | (4-2)1328            | HAXO, H. E., Publication vs presentation  | (4)CXXX              |
| EAVES, D. E., SEE COOPER, W.  | (4-1)964             | HEAP, R. D., Distribution of tensile strength data  | (2)340               |
| ECKER, F. J., SEE SCOTT, C. E.  | (3)553               | HECKMAN, F. A., AND D. F. HARLING, Progressive oxidation of selected particles of carbon black: further evidence for a new microstructural model                        | (1)1                 |
| ECKER, R., Abrasion resistance and high-speed tensile strength of elastomers  | (4-1)823             | HELMER, J. D., SEE THORNE, J. A.  | (5)1403              |
| EDWARDS, D. C., Aging behavior of butyl vulcanizates  | (3)581               | HENNIG, J., Anisotropy of thermal conductivity in stretched elastomers  | (3)678               |
| —, Model interpretation of thermal conductivity in high polymers I. Amorphous high polymers   | (4-1)841             | HENRY, M. C., SEE GRIFFIS, C. B.  | (3)481               |
| —, Model interpretation of thermal conductivity of high polymers II. Stretched amorphous high polymers  | (4-1)858             | HEYING, T. L., SEE SCHROEDER, H.  | (4-2)1184            |
| —, Pressure dependence of thermal conductivity in amorphous materials   | (4-1)863             | HILDITCH, G., SEE ANGOVE, S. N.   | (3)755               |
| —, Determination of the temperature dependence of crystallization from thermal conductivity   | (4-1)866             | HILLMER, K.-H., SEE SCHEELE, W.   | (5)1640              |
| ELLIOTT, D. J., SEE BELL, C. L. M.  | (5)1565              | HOGG, H. J., SEE CARWILE, L. C. K.  | (1)126               |
| EMERSON, W. E., SEE DORFMAN, E.   | (4-2)1175            | HOLLY, E. D., Interaction parameters and heats of dilution for ethylene propylene rubber in various solvents  | (5)1451              |
| FAIB, R. D., G. A. GRODE, AND R. L. LEININGER, Elastomers in the human body   | (4-2)1288            | HOPKINS, I. L., AND R. P. WENTZ, Reduced variables and integral equations in design of plastics and rubber structures   | (4-1)1065            |
| FEDORS, R. F., AND R. F. LANDEL, Statistical variability of ultimate properties of SBR gum vulcanizates   | (3)712               | HSIEH, H. L., Solution polymerization initiated with alkylthiums  | (3)491               |
| FERRY, J. D., R. G. MANCKE, E. MAEKAWA, Y. OYANAGI, AND R. A. DICKIE, Dynamic mechanical properties of crosslinked rubbers. I. Effects of crosslink spacing in natural rubber | (4-1)897             | HUNTER, B. A., AND M. J. KLEINFELD, Low temperature expansion of polysulfide rubbers  | (2)211               |
| —, SEE MAEKAWA, E.  | (4-1)905             | IYENGAR, Y., Relation of water vapor permeability of elastomers to molecular structure  | (3)751               |
| FRIES, B. A., SEE BLY, R. M.  | (4-1)956             | JACKSON, W. J., JR., SEE PERRY, K. P.   | (4-1)1008            |
| FRULLA, F. F., SEE SCHROEDER, H.  | (4-2)1184            | JOHNSON, J. F., SEE BARRALL, E. M.  | (5)1513              |
| FUJITA, H., SEE ABE, M.   | (3)609               | JONES, H. C., SEE BALDYGA, H.   | (4-2)1347            |
| FUJITA, H., SEE HOMMA, T.   | (3)622               | JOSE, K. A., AND S. BANERJEE, Studies of the compounding of nitrile rubber with shellac   | (3)763               |
| —, AND K. C. RUSCH, Viscoelastic behavior of open cell foams  | (2)389               | KANAVEL, G. A., P. A. KOONS, AND R. E. LAUER, Fungus resistance of millable urethans  | (4-2)1338            |
| —, AND J. E. McGRATH, Effect of temperature on ozone cracking of rubbers  | (3)643               | KAWABATA, S., AND P. J. BLATZ, Creep failure studies on SBR vulcanizates I  | (4-1)923             |
| GIANDINOTO, G. V., SEE DiGIULIO, E.   | (3)726               | KELLER, D. P., SEE RAIBLE, D. A.  | (4-2)1276            |
| GIPPIN, M., Stereoregular polymerization of butadiene with alkylaluminum chlorides and cobalt octoate   | (3)508               | KIENER, P. E., SEE BLY, R. M.   | (4-1)956             |
| GOLUB, M. A., AND J. DANON, Radiation-induced changes in unsaturation of polyisoprene   | (4-1)992             | KILLMANN, E., SEE PATAT, E.   | (1)36                |
| GORDON, M., SEE DOBSON, G. R.   | (5)1472              | KLEINFELD, M. J., SEE HUNTER, B. A.   | (2)211               |
| GRAESSLEY, W. W., Molecular entanglement theory of flow behavior in amorphous polymers  | (5)1460              | KOONS, P. A., SEE KANAVEL, G. A.  | (4-2)1338            |
| GRAHAM, E. S., SEE ANGOVE, S. N.  | (3)755               | KOORAJIAN, S., SEE RAIBLE, D. A.  | (4-2)1276            |
| GREEN, A., SEE SMITH, K. J., JR.  | (3)685               | KRAUS, G., C. W. CHILDERS, AND K. W. ROLLMANN, Stress softening in carbon black-reinforced vulcanizates. Strain rate and temperature effects                            | (5)1530              |
| GREEN, J., N. B. LEVINE, AND W. SHEEHAN, Elastomers resistant to rocket propellants   | (4-2)1222            | KROL, L. H., Butadiene and isoprene rubber in giant tire treads   | (2)452               |
| GREENSMITH, H. W., SEE SCHALLMACH, A.   | (2)328               |   |                      |

	Issue and Page		Issue and Page
KUZ'MINSKII, A. S., Aging and stabilization of raw and cured rubbers . . .	(1)88	MORAND, J., Photodegradation of rubber Correction . . .	(3)537 (5)clxx
LAKE, G. J., AND P. B. LINDLEY, Mechanical fatigue limit for rubber . . .	(2)348	MULLINS, L., AND N. R. TOBIN, Stress softening in rubber vulcanizates. Part I. Use of a strain amplification factor to describe elastic behavior of filler-reinforced vulcanized rubber . . .	(4-1)799 (4-1)814 (3)609
—, Role of ozone in dynamic cut growth of rubber . . .	(4-1)1053	—, SEE HARWOOD, J. A. . . .	
LAL, J., AND K. W. SCOTT, Properties and structure of elastomers . . .	(4-1)881	MURAKAMI, Y., SEE ABE, M. . . .	
LAND, J. E., SEE HAMMETT, R. E. . . .	(2)206	MURPHY, E. A., Some early adventures with latex (Goodyear Medal Address) . . .	(3)lxixiii
LANDEL, R. F., SEE FEDORS, R. F. . . .	(3)712	NATTA, G., M. PEGORARO, F. SEVERINI, AND S. DABHIADE, Improvement of impact strength of polystyrene by compounding with styrene-grafted ethylene propylene elastomeric copolymers . . .	(5)1667
LARCHAR, T. B., SEE SCHROEDER, H. . . .	(4-2)1184	NEWMAN, S., AND S. STRELLA, Stress strain behavior of rubber reinforced glassy polymers . . .	(4-1)1019
LAUER, R. E., SEE KANAVEL, G. A. . . .	(4-2)1338	NORLING, P. M., AND A. V. TOBOLSKY, Oxidation of two isomeric elastomers: poly(propylene oxide) and poly(vinyl methyl ether) . . .	(2)278
LAVER, R. W., Reaction of ozone with p-phenylenediamine and related compounds . . .	(5)1584	OSSEFORT, Z. T., AND F. B. TESTROET, Hydrolytic stability of urethan elastomers . . .	(4-2)1308 (5)clxxii
LEBOVITS, A., Effect of high hydrostatic pressure on the permeability of elastomers to water . . .	(4-2)1298	Correction . . .	
LEE, T. C. P., SEE LYONS, P. F. . . .	(5)1634	OYANAGI, Y., SEE FERRY, J. D. . . .	(4-1)897
LEEMING, P. A., R. S. LEHRLE, AND J. C. ROBB, Polymerization of chloroprene II. Role of dimers in thermal polymerization . . .	(5)1390	PARKS, C. R., SEE COX, W. L. . . .	(3)785
LEHRLE, R. S., SEE LEEMING, P. A. . . .	(5)1390	PARKS, E. J., SEE LINNIG, F. J. . . .	(4-1)940, 1041
LEININGER, R. I., SEE FALB, R. D. . . .	(4-2)1288	PATAT, F., E. KILLMANN, AND C. SCHLIEBENER, Adsorption of macromolecules from solution . . .	(1)36
LEVINE, N. B., SEE GREEN, J. . . .	(4-2)1222	—, AND G. SPOTT, Non-Newtonian flow of polymer solutions . . .	(5)1411
LEWIS, J. H., Physical properties of two O-ring compounds after exposure to reactor radiation . . .	(4-2)1258	PATRICK, J. B., AND S. M. MARTIN, JR., J. C. Patrick—Goodyear Medalist . . .	(5)cl
LINDLEY, P. B., SEE LAKE, G. J. . . .	(2)348, (4-1)1053	PATTERSON, R. G., Mechanism of bias filament rupture in fatigue of nylon . . .	(5)1382
LINNIG, F. J., E. J. PARKS, AND R. D. STEHLER, Effect of certain crystalline substances on physical properties of elastomers I. Stress-strain behavior . . .	(4-1)1041	PAUL, D. R., AND A. T. DI BENEDETTO, Diffusion in amorphous polymers . . .	(5)1496
—, AND L. A. WOOD, Ethylene propylene copolymers: crystallinity, infrared, and creep studies . . .	(4-1)940	PAYNE, A. R., Effect of dispersion on dynamic properties of filler-loaded rubbers . . .	(2)365
LITTLE, J. R., AND R. A. GREGG, Relation of modulus of urethan rubber to molecular weight of polyester . . .	(4-1)1089	—, Note on conductivity and modulus of carbon-black-loaded rubbers . . .	(4-1)1915
LYONS, P. F., T. C. P. LEE, AND A. V. TOBOLSKY, Labile crosslinks in "saturated" elastomers as measured by stress relaxation . . .	(5)1634	—, SEE HARWOOD, J. A. . . .	(4-1)814, (5)1544 (5)1667
MCGAVACK, J., One hundred top contributors to the World's Rubber Literature II. 1932-1963 . . .	(2)liv (5)clxx	PEGORARO, M., SEE NATTA, G. . . .	
Correction . . .		PELLON, J., AND K. J. VALAN, Radiation induced block or graft copolymers of methyl methacrylate with isobutylene and ethylene propylene rubbers . . .	(5)1617
MCGRATH, J. E., SEE GENT, A. N. . . .	(3)643	PEREY, K. P., W. J. JACKSON, JR., AND J. R. CALDWELL, Elastomers based on polycyclic bisphenol polycarbonates . . .	(4-1)1008
MCMANUS, S. F., AND S. PIKEN, Elastomeric seals for the army's LANCE missile . . .	(4-2)1233	PETERLIN, A., SEE BUROW, S. P. . . .	(3)631
MAEKAWA, E., R. G. MANCKE, AND J. D. FERRY, Dynamic mechanical properties of crosslinked rubbers. II. Effects of crosslink spacing and initial molecular weight in polybutadiene . . .	(4-1)905 (4-1)897	PETREE, M. C., SEE WARFIELD, R. W. . . .	(1)143
—, SEE FERRY, J. D. . . .		PETTERSON, D. L., SEE COLE, H. M. . . .	(2)259
MACKNIGHT, W. J., SEE TOBOLSKY, A. V. . . .	(3)524	PIERIE, W. R., SEE RAIBLE, D. A. . . .	(4-2)1276
MAGNUS, G., R. A. DUNLEAVY, AND F. E. CRITCHFIELD, Stability of urethan elastomers in water, dry air and moist air environments . . .	(4-2)1328	PIKEN, S., SEE MCMAUS, S. P. . . .	(4-2)1233
MANCKE, R. G., SEE FERRY, J. D. . . .	(4-1)897	FOLMANTER, K. E., J. A. THORNE, AND J. D. HELMER, Shift in $T_g$ by elastomer orientation . . .	(5)1403
—, SEE MAEKAWA, E. . . .	(4-1)905	PORTER, R. S., SEE BARRALL, E. M. . . .	(5)1513
MARTIN, S. M., JR., SEE PATRICK, J. B. . . .	(5)cl	PUETT, D., SEE SMITH, K. J. . . .	(5)1436
MASON, P., Thermal expansion and viscoelasticity of rubber in relation to crosslinking and molecular packing . . .	(2)408	RAIBLE, D. A., D. P. KELLER, W. R. . . .	
MILLER, C. B., SEE BOENIG, H. V. . . .	(4-1)974	PIERIE, AND S. KOORAJIAN, Elastomers for use in heart valves . . .	(4-2)1276
MILLER, H. T., SEE WARKAKA, G. E. . . .	(5)1421	REHAGE, G., Thermodynamics of swelling. I. Thermodynamic properties of crosslinked binary systems . . .	(3)651
—, AND G. E. WARKAKA, Strain-dependent properties of polymers II . . .	(5)1428	REHNER, J., JR., Whither Rubber Reviews . . .	(1)xxxiii
MILLIGAN, B., Vulcanization accelerator and activator complexes. 2. chemistry of amine and zinc carboxylate complexes of zinc and cadmium benzothiazyl mercaptides . . .	(4-1)1115	—, SEE SERNIUK, G. E. . . .	(4-1)1105
		—, SEE WEI, P. E. . . .	(4-1)1094

- RICHARDSON, M. J., Direct observation of polymer molecules and determination of their molecular weight ..... (3)567  
 RIVERA, M., Elastomers in space and in other high vacuum environments ..... (4-2)1127  
 ROBB, J. C., SEE LEEMING, P. A. .... (5)1390  
 ROGERS, T. H., JR., Biographical note on E. A. Murphy ..... (3)lxv  
 ROHDE, E., SEE SCHEELE, W. .... (3)768  
 ROLLMANN, K. W., SEE KRAUS, G. .... (5)1530  
 ROTH, F. L., G. W. BULLMAN, AND L. A. WOOD, Compliance-time-temperature relationships from indentation measurements on a pure-gum rubber vulcanizate ..... (2)397  
 RUSCH, K. C., SEE GENT, A. N. .... (2)389  
 SALTER, I. O., SEE BELLANCA, C. L. .... (4-2)1215  
 SAUNDERS, J. H., AND J. K. BACKUS, Thermal degradation and flammability of urethan polymers ..... (2)461  
 SAVILLE, B., SEE BELL, C. L. M. .... (5)1565  
 SAVKOOR, A. R., Friction of rubber ..... (2)306  
 SAYLES, D. C., Applications of elastomers in solid rocket powerplants ..... (1)112  
 SCHAFFLING, O. T., SEE SCHRÖDER, H. SCHALLMACH, A., A theory of dynamic rubber friction ..... (4-2)1184  
 —, D. B. SELLEN, AND H. W. GREENSMITH, Dynamic behavior of rubber during moderate extensions .. (2)328  
 —, SEE GROSCH, K. A. .... (2)287  
 SCHEELE, W., AND E. ROHDE, Vulcanization of elastomers. 47. Vulcanization of natural rubber and polybutadiene with benzoyl peroxide ..... (3)768  
 —, AND K.-H. HILLMER, Degradation of elastomers. 4. Continuous chemical stress relaxation of natural rubber vulcanizates ..... (5)1640  
 SCHLIEBENER, C., SEE PATAT, F. .... (1)36  
 SCHRÖDER, H., O. T. SCHAFFLING, T. B. LARCHER, F. F. FRULLA, AND T. L. HEYING, Poly-m-carboranesiloxanes as thermostable elastomers ..... (4-2)1184  
 SCOTT, C. E., AND F. J. ECKERT, Solution masterbatching studies ..... (3)553  
 SCOTT, K. W., SEE LAI, J. .... (4-1)881  
 SEKHAR, B. C., SEE BATEMAN, L. .... (5)1608  
 SELLEN, D. B., SEE SCHALLMACH, A. (2)328  
 SERNIUK, G. E., P. E. WEI, AND J. REHNER, JR., New vulcanizing agents for ethylene propylene elastomers IV. (4-1)1105  
 —, SEE WEI, P. E. .... (4-1)1094  
 SEVERINI, F., SEE NATTA, G. .... (5)1667  
 SHEEHAN, C. J., AND A. L. BISIO, Polymer/solvent interaction parameters .. (1)149  
 SHEEHAN, W., SEE GREEN, J. .... (4-2)1222  
 SHOTTAFFER, J. E., SEE BOENIG, H. V. (4-1)974  
 SIERON, J. K., High temperature elastomers for extreme aerospace environments ..... (4-2)1141  
 SKEWIS, J. D., Self-diffusion coefficients and tack of some rubbery polymers (2)217  
 STJAKA, V. A., SEE COLE, H. M. .... (2)259  
 SMITH, K. J., JR., A. GREENE, AND A. CIPHERI, Crystallization under stress and non-Gaussian behavior of macromolecular networks ..... (3)685  
 —, AND D. PUETT, Stress optical behavior of rubber networks at large deformations ..... (5)1436  
 SMITH, D. S., SEE COLE, H. M. .... (2)259  
 SNOWDON, J. C., Occurrence of wave effects in rubber antivibration mountings ..... (3)740  
 SNYDER, C. E., AND D. S. WEIR, Controlled instability of polymers for grid-type satellites ..... (4-2)1161  
 SPACHT, R. B., Best paper committee (4)cxviii  
 SPOTT, G., SEE PATAT, F. .... (5)1411  
 STIEHLER, R. D., SEE LINNIG, F. J. .. (4-1)1041  
 STRELLA, S., SEE NEWMAN, S. .... (4-1)1019  
 STUDEBAKER, M. L., Effect of curing systems on selected physical properties of natural rubber vulcanizates ..... (5)1359  
 —, Changes in polysulfide content during road tests of SBR tires ..... (5)1526  
 STEWART, R. A., SEE ANGOVE, S. N. .. (3)755  
 SWIFT, P. McL., SEE GROSCH, K. A. .. (5)1656  
 TAKAHASHI, M., SEE TOBOLSKY, A. V. (4-1)1030  
 TANGORRA, G., Pressures and flow rates in extruders with axially-variable geometry ..... (2)418  
 —, Hardness, modulus, and thickness (5)1520  
 TARASOVA, Z. N., AND B. A. DOGADKIN, Thermal stress relaxation of vulcanizates of various structures ..... (5)1625  
 TESTROET, F. B., SEE OSSEFORT, Z. T. (4-2)1308  
 THEOCARIS, P. S., Relaxation response of polyurethane elastomers ..... (2)375  
 THIRION, P., SEE CHASSET, R. .... (4-1)870  
 THORNE, J. A., SEE WHIPPLE, C. L. .. (4-2)1247  
 —, SEE POLMANTER, K. E. .... (5)1403  
 TOBIN, R., SEE MULLINS, L. .... (4-1)799  
 TOBOLSKY, A. V., W. J. MACKNIGHT, AND M. TAKAHASHI, Relaxation of disulfide and tetrasulfide polymers ... (3)524  
 —, AND M. TAKAHASHI, Elemental sulfur as a plasticizer for polysulfide polymers and other polymers ..... (4-1)1030  
 —, SEE NORLING, P. M. .... (2)278  
 —, SEE LYONS, P. F. .... (5)1634  
 TOKITA, N., SEE WHITE, J. L. .... (2)436  
 TRAGER, R. K., Dynamic mechanical testing to evaluate radiation induced changes in polymers ..... (4-2)1268  
 TUNNICLIFFE, M. E., SEE CORISH, P. J. (2)226  
 —, SEE COOPER, W. .... (4-1)964  
 TURNER, D. T., SEE "UROW, S. P. .... (3)631  
 VALAN, K. J., SEE PELLON, J. .... (5)1617  
 VAUGHAN, G., SEE COOPER, W. .... (4-1)964  
 VOEKS, J. F., Cohesive energy density and internal pressure of high polymers ..... (4-1)969  
 WALL, L. A., SEE YU, H. .... (4-1)982  
 WAKFIELD, R. W., AND M. C. PETREE, Thermodynamic properties of natural rubber and isoprene ..... (1)143  
 WARGIN, R. V., SEE CASE, L. C. .... (5)1489  
 WARNAKA, G. E., AND H. T. MILLER, Strain-dependent properties of polymers I ..... (5)1421  
 —, SEE MILLER, H. T. .... (5)1428  
 WEI, P. E., G. E. SERNIUK, AND J. REHNER, JR., New vulcanizing agents for ethylene propylene elastomers. III (4-1)1094  
 —, SEE SERNIUK, G. E. .... (4-1)1105  
 WEIR, D. S., SEE SNYDER, C. E. .... (4-2)1161  
 WENTZ, R. P., SEE HOPKINS, I. L. .... (4-1)1065  
 WHIPPLE, C. L., AND J. A. THORNE, Performance of elastomeric silicones in ablative and space environments ... (4-2)1247  
 WHITE, G. S., *Johan Rudolf Katz* ... (3)xcii  
 WHITE, F. L., SEE ANGOVE, S. N. .... (3)755  
 WHITE, J. L., AND N. TOKITA, Rheological analysis of raw elastomers with the multispeed Mooney shearing disk viscometer ..... (2)436  
 WINGARD, R. E., SEE HAMMETT, R. E. (2)206  
 WOLF, R. F., International Rubber Science Hall of Fame ..... (3)lxxxix  
 WOOD, L. A., Tables of physical constants of rubber ..... (1)132  
 —, SEE ROTH, F. L. .... (2)397  
 —, SEE LINNIG, F. J. .... (4-1)940  
 YU, H., AND L. A. WALL, Radiolytic stress relaxation of an ethylene propylene copolymer ..... (4-1)982

# SUBJECT INDEX

	Issue and Page		Issue and Page
Abradability .....	(2)287	— effects on conductivity and modulus	(4-1)915
Abrasion and high-speed tensile strength	(4-1)823	— effect on fatigue .....	(2)348
— of polybutadiene, natural rubber		— and Mullins effect .....	(3)597,
blends .....	(2)452		(5)1530
— and strength of rubber .....	(2)287	— oxidation and structural model .....	(1)11
Acid rubbers, use in rockets .....	(1)112	— pellet hardness .....	(4-1)1081
Acrylic acid copolymers in rockets .....	(1)112	— reinforcement in swollen rubber .....	(5)1565
Adhesion, relation to adsorption .....	(1)36	— solution masterbatching .....	(3)553
— in rubber friction .....	(2)320	— strain amplification by .....	(4-1)799,
— theory of contribution to rubber friction			814
Adsorbents .....	(2)306	Carborane siloxane elastomers .....	(4-2)1184
Adsorption of macromolecules from solution	(1)36	Carboxyl rubbers, stress relaxation .....	(5)1625
Aging, of butyl .....	(3)581	Catalysis, effect on ethylene and propylene reactivity ratios .....	(2)241
— of natural rubber .....	(5)1565,	Charles Goodyear, <i>see</i> Goodyear	
	1577, 1608	Chloroprene dimers in thermal polymerization	(5)1390
— of pyridine rubber .....	(1)88	Chromatographic polymer identification	(2)248,
— and stabilization of rubber, review	(1)88		259
Alkylaluminum halides, in butadiene polymerization	(3)508	Cobalt octoate, in butadiene polymerization	(3)508
Alkyl lithium solution polymerization ..	(3)491	Cohesive energy density and internal pressure of polymers .....	(4-1)969
Analysis of polybutadiene structure ..	(4-1)945	— <i>see also</i> Solubility parameter	
— infrared, of ethylene to propylene ratio		Compliance of rubber .....	(2)397
	(2)226,	Conductivity electrical and modulus .....	(4-1)915
— of polymers by gas chromatography	(4-1)956	— polymer thermal .....	(4-1)841,
	(2)248,		858, 863
— rheological .....	259	— of stretched elastomers .....	(3)678
Anisotropy of thermal conductivity .....	(2)436	— thermal, and crystallization .....	(4-1)866
Antioxidants, effect on cut growth .....	(3)678	— thermal, of rubber .....	(1)126
— in review on aging .....	(2)348	Configuration, <i>see</i> Microstructure, Conformation, Stereoregularity	
Antiozonant reaction with ozone .....	(1)88	Conformation of polydienes .....	(1)14
Atactic, <i>see</i> Stereoregularity .....	(5)1584	Copolymer analysis by DTA .....	(5)1513
Authors, 100 top .....	(1)14	Cord, failure in tires .....	(5)1382
Authors' instructions .....	(2)11v	Cracking, groove-, and polysulfides .....	(5)1526
Azodicarboxylates as blowing agents ..	(1)xxi	Creep of EP copolymer .....	(4-1)940
Balaata, effect of radiation .....	(2)211	— failure of SBR .....	(4-1)923
Balloons, evaporating rubber for .....	(4-1)992	Crosslink density, estimated from breaking elongation .....	(3)726
Battery jar, design .....	(4-2)1161	Crosslinking and dynamic properties ..	(4-1)905
Benzothiazolinethione complexes .....	(4-1)1065	— effect on slow relaxation .....	(4-1)870
Benzoyl peroxide, vulcanization of natural rubber .....	(4-1)1115	— and relaxation of natural rubber ..	(4-1)897
Best paper committee .....	(3)768	Crosslinks exchange in relaxation .....	(5)1640
Biography of A. E. Juve .....	(4)cxviii	— and stress relaxation .....	(5)1634
— of J. C. Patrick .....	(1)xxv	Crystalline transitions in polybutadiene	(2)193
Birefringence at high strain .....	(5)cl	Crystallinity and conformation of diene polymers .....	(1)14
Bisphenol polycarbonate elastomers ..	(5)1436	— of EP copolymers .....	(4-1)940
Blends, analysis by gas chromatography	(4-1)1008	— and infrared spectrum of EPR .....	(2)226
	(2)248,	Crystallites in carbon black .....	(1)1
Blocks, detection by DTA .....	259	Crystallization of natural rubber .....	(2)206
Blowing agents, for polysulfide rubber	(5)1513	— of natural rubber under stress .....	(3)685
Boron-containing elastomers .....	(2)211	— temperature coefficient from thermal conductivity .....	(4-1)866
Branching and elasticity .....	(4-2)1184	Curing systems and natural rubber	(3)785
Butadiene, polymerization with alkyl-lithium .....	(5)1472	fatigue .....	(4-1)1053
— polymerization with cobalt octoate	(3)491	Cut growth of natural rubber and ozone	(2)348
Butyl, aging of vulcanizates .....	(3)508	— of rubbers .....	(5)1421,
— analysis by gas chromatography .....	(3)581	Damping, effect of strain .....	1428
— abrasion and tensile strength .....	(2)259	— in natural rubber .....	(4-1)897
— in aerospace uses .....	(2)287	— by open-cell foams .....	(2)389
— chlorinated, for rocket seal .....	(4-2)1141	and vibration isolation .....	(3)740
— physical constants .....	(4-2)1233	Degradation and stress relaxation .....	(5)1640
— in rocket seals .....	(1)132	Density of EP copolymers .....	(4-1)940
	(4-2)1215,	Design of plastic and hard rubber structures	(4-1)1065
— self-diffusion and tack .....	1233	Dicyclopentadiene, effects on EPT structures	(4-1)964
— stress softening .....	(2)17		
— water permeability .....	(3)597		
Carbon black, dispersion and dynamic properties .....	(4-2)1298		
— effect on aging .....	(2)365		
	(1)88		



- |   | Issue<br>and<br>Page              |   | Issue<br>and<br>Page |
|---|-----------------------------------|---|----------------------|
| Diene polymers, conformation of stereo-regular .....                                  | (1)114                            | Failure of SBR in creep .....   | (4-1)923             |
| Differential thermal analysis, of natural rubber crystallization .....                | (2)206                            | Fatigue, <i>see also</i> Cut-growth, Groove<br>cracking .....                         | (1)88                |
| — of polybutadiene melting .....  | (2)193                            | Fatigue, and aging, review .....  | (3)785               |
| Diffusion, as factor in aging .....   | (1)88                             | — effect of cure in natural rubber .....  | (2)348               |
| — in polymers .....   | (5)1496                           | — fillers and .....   | (2)349               |
| — and tack in rubber .....  | (2)217                            | — limit for rubber .....  | (5)1382              |
| Dimers, in chloroprene polymerization .....   | (5)1390                           | — of nylon cord .....   | (5)1526              |
| Dispersion and dynamic properties .....   | (2)365                            | — and polysulfides in tires .....   | (4-1)1115            |
| — hardness of carbon black .....  | (4-1)1081                         | Fatty acids, complexes with accelerators .....  | (2)348               |
| DTA for microstructure determination<br>in EPR .....                                  | (5)1513                           | Fillers, effect on fatigue .....  | (2)461               |
| Durometer, shore A .....  | (5)1520                           | Flammability and thermal degradation<br>of polyurethans .....                         | (5)1460              |
| Dynamic behavior of rubber at high<br>strain .....                                    | (2)328                            | Flow, entanglement theory .....   | (2)418               |
| Dynamic modulus and strain .....  | (5)1421,<br>1428                  | — in extruders .....  | (5)1411              |
| Dynamic properties, effect of radiation<br>— and crosslinking in natural rubber ..... | (4-2)1268                         | — of polymer solutions .....  | (4-2)1222            |
| — and crosslinking of polybutadiene .....   | (4-1)897                          | Fluorocarbon polymers, fuel resistance .....  | (4-2)1200            |
| — effect of dispersion .....  | (4-1)905                          | — in aerospace uses .....   | (4-2)1141            |
| Elasticity, theory of .....   | (5)1472                           | Fluoroolefin elastomers, aging .....  | (1)88                |
| Elastomers, in the body .....   | (4-2)1276,<br>1288, 1293          | Foams from NIR latex .....  | (3)755               |
| — of controlled instability .....   | (4-2)1161                         | — viscoelasticity of open-cell .....  | (2)389               |
| — in o-ring seals .....   | (4-2)1215                         | Fracture and stress strain properties of<br>reinforced plastics .....                 | (4-1)1019            |
| — fungus resistance .....   | (4-2)1338                         | Freezing of natural rubber .....  | (2)206               |
| — heparin coating .....   | (4-2)1288                         | Freezing point, of polybutadiene .....  | (2)193               |
| — for high temperatures .....   | (4-2)1141                         | Frequency, temperature, and strain as<br>parameters .....                             | (5)1421,<br>1428     |
| — from polycarbonates .....   | (4-1)1008                         | Friction, abrasion, and tensile strength<br>— of rubber, theory of adhesion and ..... | (4-1)823             |
| — resistant to rocket fuels .....   | (4-2)1215,<br>1222, 1233          | — theory of dynamic .....   | (2)306               |
| — in solid rockets .....  | (4-2)1276                         | Fuels, effect on rubber seals .....   | (2)320               |
| — reinforcement of plastics .....   | (4-1)1019                         | Fuel tank sealants .....  | (4-2)1215            |
| — thermal conductivity .....  | (4-1)841                          | Fungus resistance of polyurethans .....   | (4-2)1200            |
| — for temperature resistance .....  | (4-2)1175,<br>1178, 1184,<br>1200 | Fungus resistance of polyurethans .....   | (4-2)1338            |
| — for unusual conditions <i>see</i> symposium .....                                   | (4-2)1127ff.                      | Gas chromatography in polymer analysis .....  | (2)248,<br>259       |
| — for use in rockets .....  | (1)112                            | Gas diffusion in polymers .....   | (5)1496              |
| — in vacuum .....   | (4-2)1127                         | Geometrical isomerism, <i>see</i> Stereoregularity .....                              |                      |
| — water resistance .....  | (4-2)1308,<br>1328                | Glass transition and orientation .....  | (5)1403              |
| Elongation at break and crosslink density .....                                       | (3)726                            | — of polyethers .....   | (4-1)881             |
| Entanglement in polymer flow, theory .....  | (5)1460                           | Goodyear medalists .....  | (1)xvii              |
| Entanglements, effect on stress strain<br>properties .....                            | (5)1489                           | Grafting on EPR .....   | (5)1617,<br>1667     |
| — and slow relaxation .....   | (4-1)897,<br>905                  | — radiation induced .....   | (5)1617              |
| EPR, EPT <i>see</i> under Ethylene  |                                   | Groove cracking and polysulfides .....  | (5)1526              |
| Ethylene, analysis for use in EPR .....   | (2)226                            | Gutta percha, microstructure .....  | (1)114               |
| — reactivity with propylene .....   | (2)241                            | — oxidation in solution .....   | (3)530               |
| EPR, analysis for ratio of combined<br>monomers .....                                 | (2)226                            | Hall of Fame, rubber science .....  | (3)xxxix             |
| — crystallinity, creep, and infrared .....  | (4-1)1940                         | Haloolefin EPR vulcanizing agents .....   | (4-1)1094,<br>1105   |
| — diffusion of gases in .....   | (5)1496                           | Hardness, of carbon black pellets .....   | (4-1)1081            |
| — grafts .....  | (5)1667                           | — modulus, thickness .....  | (5)1520              |
| — interaction parameters .....  | (1)149,<br>(5)1451                | Hard rubber, design of structures .....   | (4-1)1065            |
| — monomer reactivity ratios .....   | (2)241                            | Heart-valve elastomers .....  | (4-2)1276            |
| — near-infrared analysis .....  | (4-1)1956                         | Heat conductivity in elastomers .....   | (3)678               |
| — radiation grafting on .....   | (5)1617                           | — of dilution, EPR .....  | (3)1436              |
| — radiolytic stress relaxation .....  | (4-1)1982                         | Heparin, coating on elastomers .....  | (4-2)1288            |
| — self-diffusion and tack .....   | (2)217                            | Hydrazides as blowing agents .....  | (2)211               |
| — structure by DTA .....  | (5)1513                           | Hydrides as blowing agents .....  | (2)211               |
| — vulcanization with perhaloolefins .....   | (4-1)1094,<br>1105                | Hydrogenated natural rubber as infrared<br>analytical standard .....                  | (2)226               |
| — vulcanization with radioactive peroxide .....                                       | (3)521                            | Hydrolysis of polyurethans .....  | (4-2)1308,<br>1328   |
| EPT, abrasion and strength .....  | (4-1)823                          | Hydrosolution masterbatching .....  | (3)553               |
| — in aerospace uses .....   | (4-2)1141                         | Impact resistance and stress strain<br>properties .....                               | (4-1)1019            |
| — stability to heat and light .....   | (4-2)1347                         | Indenter hardness and modulus .....   | (5)1520              |
| — stress softening .....  | (3)597                            | Index of Rubber Reviews and authors .....   | (1)xxxvii            |
| — (dicyclopentadiene) structures .....  | (4-1)964                          | Infrared, <i>see</i> Near-infrared .....  |                      |
| — stress relaxation of vulcanizates .....   | (5)1634                           | — analysis of polybutadiene .....   | (4-1)1945            |
| Evaporation of polymers in space .....  | (4-2)1161                         | — determination of E/P ratio .....  | (2)226               |
| Extruders, flow in axially-variable .....   | (2)418                            | — spectra and EPR properties .....  | (4-1)940             |
| Fabric fatigue mechanism .....  | (5)1382                           | Instructions to authors .....   | (1)xxi               |
|   |                                   | Interaction parameter, EPR .....  | (5)1451              |
|   |                                   | Interaction parameters, polymers and<br>solvents, review .....                        | (1)149               |
|   |                                   | Internal Pressure and CED .....   | (4-1)969             |
|   |                                   | Isomers, conformation of geometrical .....  | (1)14                |

	Issue and Page		Issue and Page
Isoprene, polymerization with alkyl- lithiums .....	(3)491	— microstructure .....	(1)14
— thermodynamic properties .....	(1)143	— Mullins effect in .....	(5)1544
Isotactic, <i>see</i> Stereoregularity .....	(1)14	— Mullins effect in gum .....	(4-1)799, 814
Juve, Arthur Edgar, obituary .....	(1)xxv	— oil extended .....	(5)1656
Katz, Johan Rudolf, biography .....	(3)xcii	— oxidation in solution .....	(3)530
Kinetics, of adsorption of macromole- cules .....	(1)36	— photooxidation .....	(3)537
Langmuir adsorption isotherm .....	(1)36	— physical constants .....	(5)1608
Latex, early history .....	(3)lxviii	— PRI in .....	(4-1)992
— masterbatch, compared with solution	(3)755	— self-diffusion and tack .....	(2)217
Light, effect on rubber aging .....	(3)553	— shear compliance .....	(2)397
Literature, most prolific authors .....	(1)88	— slow relaxation .....	(4-1)870, 987
Lithium aluminum hydride, as a blow- ing agent .....	(2)211	— stress relaxation .....	(5)1640
Macromolecules, adsorption from solu- tion .....	(1)36	— stress softening .....	(3)597
Magnesium silicate reinforcement for fluoroelastomers .....	(4-2)1141	— and synthetic polyisoprenes .....	(5)1593
MBT, complexes of .....	(4-1)1115	— thermal conductivity .....	(4-1)841
Melting, of natural rubber .....	(2)206	— thermal expansion .....	(2)408
— of polybutadiene .....	(2)193	— thermodynamic properties .....	(1)143
Mercaptobenzothiazole, <i>see</i> MBT .....	(1)88	— viscoelasticity .....	(2)408
Methacrylate polymers for controlled in- stability .....	(4-2)1161	— vulcanization .....	(5)1359
Methylmethacrylate radiation grafting ..	(5)1617	Near-infrared analysis of EP copolymers	(4-1)956
Microstructure, <i>see</i> Stereoregularity, In- dividual polymers, and Carbon black		Nitrile rubber, abrasibility .....	(2)287
— of alkylaluminum polymers .....	(3)491	— abrasion and strength .....	(4-1)823
— and infrared analysis of EPR .....	(2), 26	— analysis by gas chromatography ..	(2)259
— determined by DTA .....	(5)1513	— dynamic properties at high strain ..	(2)328
— of EP copolymers .....	(4-1)956	— interaction parameter .....	(1)149
— of EP dicyclopentadiene terpolymers	(4-1)964	— in radiation field .....	(4-2)1258
— of polybutadiene .....	(4-1)945	— use in rockets .....	(1)112
— radiation and, polyisoprene .....	(4-1)992	— with shellac .....	(3)763
Microscopy, electron, for molecular weight determination .....	(3)567	— isoprene rubber latex foam .....	(3)755
Models of geometrical isomers of poly- mers .....	(1)14	Nitrogen diffusion in polymers .....	(5)1496
Modulus, effect of curing system .....	(5)1359	Nitroso rubbers .....	(3)481
— effect of entanglements .....	(5)1489	Normal stresses in solution, theory ..	(5)1460
— hardness, thickness .....	(5)1520	NMR and antioxidant activity .....	(5)1584
— and molecular weight of polyure- thans .....	(4-1)1089	Nylon tire cord fatigue .....	(5)1382
— effect of strain on dynamic .....	(5)1421, 1428	Oil extension of natural rubber .....	(3)1656
Molecular structure and vapor permea- bility .....	(3)751	Optical effect of stress .....	(5)1436
Molecular weight and adsorption of ma- cromolecules .....	(1)36	Orientation, effect on glass transition	(5)1403
— determination by direct observation	(3)567	O-Rings in radiation fields .....	(4-2)1258
— effect on slow relaxation .....	(4-1)870	Oxidation, of carbon black .....	(1)11
— of polyester and urethan modulus ..	(4-1)1089	— at high strain .....	(5)1577
Mooney viscometer, multispeed .....	(2)436	— of isomeric elastomers .....	(2)278
Mullins effect, <i>see also</i> Stress softening	(3)597	— of natural rubber, effect of light ..	(3)537
— in gum stocks .....	(4-1)799	— of polyisoprenes in solution .....	(3)530
— variables in .....	(5)1530, 1544	— of raw natural rubber .....	(5)1608
Natural rubber, abrasion and strength	(2)287, (4-1)823	— of rubbers, review .....	(1)88
— adsorption .....	(1)36	— effect on rubber seals .....	(4-2)1215, 1233
— aging .....	(5)1565, 1577	Oxygen, effect in cut growth .....	(2)348
— and benzoyl peroxide .....	(3)768	— effect on stress relaxation .....	(5)1667
— birefringence .....	(5)1436	Ozone cracking and temperature .....	(3)643
— compliance .....	(2)397	— reaction with phenylene diamines ..	(5)1584
— conductivity of filled stocks .....	(4-1)915	— in dynamic cut growth .....	(4-1)1053
— crystallite growth .....	(2)206	Paper presentation and publication ..	(4)xcviii, cxxx
— crystallization under stress .....	(3)685	Patrick, J. C.—biographic sketch .....	(5)c1
— cut growth .....	(2)348, (4-1)1053	Pentamene as polybutadiene solvent ..	(3)609
— dynamic properties at high strain ..	(2)328	Perhaloolefins in EPR vulcanization ..	(4-1)1094, 1105
— fatigue and curing systems .....	(3)785	Permeability of rubber to water .....	(4-2)1298
— heparin coating .....	(4-2)1288	Peroxide, vulcanization with radioactive cumyl .....	(3)521
— hydrogenated, as infrared analytical standard .....	(2)226	Phenyl- $\beta$ -naphthylamine, modulus ef- fects .....	(4-1)1041
— interaction parameters .....	(1)149	Phenylenediamines, reaction with ozone	(5)1584
— in vibration damping .....	(3)740	Photodegradation of natural rubber ..	(3)537
— latex products, history .....	(3)lxviii	Physical constants of rubbers .....	(1)132
		Plasticity retention index of NR .....	(5)1608
		Plastics, design of structures .....	(4-1)1065
		Polybutadiene, <i>see also</i> Butadiene	
		— abrasion and strength .....	(4-1)823
		— aging .....	(2)287
		— conformation of stereoregular .....	(1)188
		— crystalline transitions .....	(1)14
		— effect on SBR groove cracking .....	(2)193
		— diffusion in .....	(5)1526
		— in heavy-service tires .....	(5)1496
			(2)452



# SUBJECT INDEX

1683

	Issue and Page		Issue and Page
Polybutadiene, infrared spectra and structure .....	(4-1)945	— effect on polymer thermal conductivity .....	(4-1)863
— interaction parameters .....	(1)149	Propellant resistant elastomers .....	(4-2)1215,
— ozone cracking and temperature .....	(3)643	1222, 1233	
— sedimentation analysis .....	(3)609	Propylene, analysis for in EPR .....	(2)226
— slow relaxation processes .....	(4-1)905	— reactivity with ethylene .....	(2)241
— solution masterbatching .....	(3)553	Pyridine rubber, aging of .....	(1)88
— stress softening .....	(3)597	Radiation, effect on elastomers .....	(4-2)1258,
Poly(butyl methacrylate) use in unstable elastomers .....	(4-2)1161	1268	
Polycarbonate bisphenol elastomers ..	(4-1)1008	— grafting .....	(5)1617
Polychloroprene, analysis by gas chromatography .....	(2)259	— and polyisoprene unsaturation .....	(4-1)992
— physical constants .....	(1)132	— and rubber aging .....	(1)88
— by thermal polymerization of dimers ..	(5)1390	Radioactive peroxide vulcanization of EPR .....	(3)521
Polydimethyl siloxane, <i>see also</i> Silicone rubbers .....	(1)149	— polymer, use in diffusion measurements .....	(2)217
Polyester urethan modulus and molecular weight .....	(4-1)1089	Radiolytic stress relaxation of EPR ..	(4-1)982
Poly(ethylene glycol) adsorption from solution .....	(1)36	Reactivity ratios of ethylene and propylene .....	(2)241
Poly(ethylene sulfide) polymers, stress relaxation .....	(3)524	Reinforcement of fluoroclastomers ..	(4-2)1141
Poly(ethylene tetrasulfide), plasticized ..	(4-1)1030	Reinforcement of natural rubber modulus by organic compounds .....	(4-1)1041
Polyisobutene, normal stress in solution ..	(5)1460	— and Mullins effect .....	(5)1530,
Polyisobutene, radiation grafting on ..	(5)1617	1544	
— solution viscosity .....	(5)1411	— of plastics by rubber .....	(4-1)1019
Polyisoprene, <i>see isoprene</i> .....		— of preswollen rubber .....	(5)1533
— comparison with natural .....	(5)1593	Relaxation, <i>see also</i> stress and viscoelasticity .....	
— conformation of stereoregular .....	(1)114	— of polyurethans .....	(2)375
— effect of radiation .....	(4-1)992	— of rubber, viscoelastic .....	(4-1)870
— solution viscosity .....	(5)1411	Resilience and structure of polyethers ..	(4-1)881
Poly-m-carboranesiloxanes .....	(4-2)1184	Reversion of butyl vulcanizates .....	(3)581
Polymer molecules direct observation of ..	(3)567	Rheological analysis of raw elastomers ..	(2)436
Polymers, theory of solutions .....	(1)149	Rockets, elastomers in solid .....	(1)112
— volatile .....	(4-2)1161	— seals for fuel chambers .....	(4-2)1215,
Polymer thermal conductivity .....	(4-1)841,	858, 863	
Polymerization of butadiene with cobalt and alkylaluminum chlorides .....	(3)508	Rubber Reviews (commentary) .....	(1)xxxiii
— of chloroprene as dimers .....	(5)1390	— (Index) .....	(1)xxxvii
— solution, with alkylaluminum .....	(3)491	Rubber (review) nitroso .....	(3)481
Polyolefins, pyrolysis for analysis .....	(2)248,	Rubber Science Hall of Fame .....	(3)lxxxix
259		Scission of polyisoprenes, oxidative ..	(3)530
Polypentadiene, conformation of stereoregular .....	(1)114	Seals for LANCE missile .....	(4-2)1233
Polypropylene, interaction parameter ..	(1)149	Sealants for high temperatures .....	(4-2)1200
— microstructure .....	(1)114	Sedimentation analysis of polybutadiene ..	(3)609
Poly(propylene oxide) oxidation of .....	(2)278	— analysis of SBR .....	(3)622
Polyisiloxanes, <i>see</i> silicone rubbers .....		Shellac in nitrile rubber .....	(3)763
Polystyrene .....	(1)149	Shift factor, strain dependent .....	(5)1421,
— adsorption .....	(1)36	1428	
— blends with EPR grafts .....	(5)1667	Silicone elastomers in ablatives .....	(4-2)1247
— molecular weight by microscopy .....	(3)567	— aging .....	(1)88
Polsulfide changes in tires .....	(5)1526	— in the body .....	(4-2)1276,
Polysulfide polymers, plasticized with sulfur .....	(4-1)1030	1288, 1293	
— stress relaxation .....	(3)524	— interaction parameters .....	(1)149
Polysulfide rubbers, expansion of .....	(2)211	— effect of radiation .....	(4-2)1268
— in vibration damping .....	(3)740	Silicones, in space .....	(4-2)1127,
Polysulfides, use in rockets .....	(1)112	1247	
Polytriazine synthesis .....	(4-2)1175	Softening by swelling .....	(5)1553
Polyurethan rubber durability .....	(4-2)1328	Solubility parameter, <i>see</i> Cohesive energy density .....	
— flammability and thermal degradation ..	(2)461	Solution masterbatching .....	(3)553
— fungus resistance .....	(4-2)1338	Solution, non-Newtonian viscosity in ..	(3)631
— hydrolytic stability .....	(4-2)1308	— theory of polymer .....	(1)149
— heparin coating .....	(4-2)1288	— viscosity of polymer .....	(5)1411
— use in rockets .....	(1)112	Solvents, effect on adsorption .....	(1)36
— viscoelastic relaxation .....	(2)375	— effects on alkylaluminum-initiated polymerization .....	(3)491
— tack .....	(4-1)974	— effect on reinforcement .....	(5)1553
Poly(vinyl acetate) solution viscosity ..	(5)1411	— for polybutadiene .....	(3)609
— adsorption from solution .....	(1)36	— for SBR .....	(3)622
Poly(vinyl alkyl ethers) dynamic properties ..	(4-1)881	Space, elastomers in .....	(4-2)1127,
Poly(vinyl chloride), adsorption .....	(1)36	1161, 1247	
— interaction parameter .....	(1)149	Stabilization of rubber, review .....	(3)712
Poly(vinyl methyl ether), oxidation .....	(2)278	Statistics, of tensile strength variation ..	(3)712
Pressure, effect on water permeability of rubber .....	(4-2)1298	— of rubber elasticity .....	(5)1472
		Stereoregularity, <i>see also</i> Microstructure, polymerization .....	
		— and conformation of polydienes (review) .....	(1)14
		Strain amplification and Mullins effect ..	(4-1)799,
		814	

	Issue and Page		Issue and Page
Strain birefringence .....	(5)1436	Theory, of adhesional friction of rubber	(2)306
Strain, effect on dynamic properties ..	(5)1421, 1428	— of adsorption .....	(1)336
— effect on oxidation .....	(5)1577	— of branching and elasticity .....	(5)1472
— energy and stress softening .....	(3)597	— of dynamic rubber friction .....	(2)320
— rate in Mullins effect .....	(5)1530	— of entanglements and modulus .....	(5)1489
Strength and abrasion of rubber .....	(2)287	— of entanglement and flow .....	(5)1460
— of SBR in low-stress tests .....	(4-1)923	— of polymer solutions .....	(1)149
Stress, effect on aging .....	(1)888	— of strain birefringence .....	(5)1436
— and crystallization of natural rubber	(3)685	— of tensile strength distribution .....	(2)340
— optical behavior .....	(5)1436	— of thermal conductivity of polymers	(4-1)841
Stress relaxation of EPR, radiolytic ..	(4-1)982	— of vibration damping in rods .....	(3)740
— of EPT .....	(5)1634	Thermal conductivity, anisotropic .....	(3)678
— of hard rubber .....	(4-1)1065	— in polymers .....	(4-1)841, 858, 863
— of natural rubber .....	(5)1640	— of rubber .....	(1)126
— of polysulfide polymers .....	(3)524	Thermal degradation of polyurethanes ..	(2)461
— physical .....	(4-1)870	Thermal expansion and crosslinking in	
— and vulcanizate structure .....	(5)1625	natural rubber .....	(2)408
Stress softening and strain amplification	(4-1)799, 814	Thermal oxidation, <i>see</i> Oxidation, Aging	
— in rubbers .....	(4-1)814	Thermodynamic properties of natural	
— of filled vulcanizates .....	(3)597	rubber .....	(1)143
— rate and temperature effects .....	(5)1530	Thermodynamics of crystallization under	
Stress strain properties of reinforced		stress .....	(3)685
plastics .....	(4-1)1019	— of swelling .....	(3)651
— effect of entanglements .....	(5)1489	Theta solvent for polybutadiene .....	(3)609
Stretching, effect on polymer thermal		— for SBR .....	(3)622
conductivity .....	(4-1)858	Thickness, hardness, modulus .....	(5)1520
Structure, <i>see also</i> Stereoregularity		Thiokol in vibration damping .....	(3)740
— and properties of polyethers .....	(4-1)881	Tire cord, bias filament rupture .....	(5)1382
— molecular, and vapor permeability	(3)751	Tires, polysulfides and cracking .....	(5)1526
SBR, abrasion and strength .....	(2)287,	Tire treads, heavy service .....	(2)452
	(4-1)823	Titanium dioxide, effect on EPT sta-	
— adsorption .....	(1)36	bility .....	(4-2)1347
— analysis by gas chromatography ..	(2)248, 259	Transitions, first-order, in natural rubber	(2)206
— creep failure .....	(4-1)923	— first-order, in polybutadiene .....	(2)193
— cut growth .....	(2)348	— second order, by DTA .....	(5)1513
— diffusion of gases in .....	(5)1496	— temperature and orientation .....	(5)1403
— groove cracking in tires .....	(5)1526	Triazine elastomers .....	(4-2)1178
— heparin coating .....	(4-2)1288	—, synthesis .....	(4-2)1175
— interaction parameters .....	(1)1149	Unsaturation, effect of radiation .....	(4-1)992
— Mullins effect in .....	(4-1)814,	Upturn in non-Newtonian viscosity ..	(4-1)940
	(5)1530	Urethan rubber, <i>see</i> Polyurethan rubber	(3)631
— effect of radiation .....	(4-2)1268	Vacuum, effects on elastomers .....	(4-2)1127
— ozone cracking and temperature ..	(3)643	Valves, artificial heart .....	(4-2)1276
— physical constants .....	(1)132	Vibration isolation and wave effects ..	(3)740
— preswelling and reinforcement .....	(5)1553	Viscoelasticity of natural rubber .....	(2)408
— in radiation field .....	(4-2)1258	—, of open cell foams .....	(2)389
— sedimentation analysis .....	(3)609	—, of polyurethanes .....	(2)375
— self-diffusion and tack .....	(2)217	—, theory of .....	(5)1472
— slow relaxation processes .....	(4-1)870	Viscosity and flow of polymer solutions	(5)1411
— solution masterbatching .....	(3)553	— of Non-Newtonian polymer solutions	(3)631
— stress softening of .....	(3)597	— and polymer entanglement .....	(5)1460
— variability of gum tensile .....	(3)712	Volume, free, in natural rubber .....	(2)408
Styrene grafts on EPR .....	(5)1667	Vulcanizate structure and aging .....	(5)1565
Suggestions to authors .....	(1)xxi	— and stress relaxation .....	(5)1625
Sulfonyl hydrazides as blowing agents	(2)211	Vulcanizates, branching and elasticity	(5)1472
Sulfur as polymer plasticizer .....	(4-1)1030	— loops in networks .....	(5)1489
Swelling (pre) and carbon black re-		Vulcanization accelerators, complexes	
inforcement .....	(5)1553	with zinc carboxylates .....	(4-1)1115
thermodynamics .....	(3)651	— activators—complexes with accelera-	
Syndiotactic, <i>see also</i> Stereoregularity	(1)114	tors .....	(4-1)1115
Symposium, elastomers for unusual en-		— effect on natural rubber fatigue .....	(3)785
vironmental conditions .....	(4-2)1127ff.	— effect on physical properties .....	(5)1359
Synergism in natural rubber aging ..	(5)1565	— effect of PRI .....	(5)1608
Tack and diffusion in rubber .....	(2)217	Vulcanization of EPR with perhalo-	
— of polyurethanes .....	(4-1)974	olefins .....	(4-1)1094, 1105
Tacticity, <i>see also</i> Microstructure, Stereoregularity	(1)114	— of natural rubber with benzoyl per-	
Temperature effect on Mullins effect ..	(5)1530	oxide .....	(3)768
— resistant elastomers .....	(4-2)1141	Water, effect in polyurethan .....	(4-2)1308, 1328
— strain, frequency as independent pa-		— permeation thru rubber .....	(4-2)1298
rameters .....	(5)1421, 1428	— vapor permeability and rubber struc-	
— and ozone cracking .....	(3)643	ture .....	(3)751
Tensile properties and crosslink density		— effects in rubber mountings .....	(3)740
of EPT .....	(3)726	Weathering, effect on EPT .....	(4-2)1347
— and abrasion resistance .....	(4-1)823	WLF shift, strain-dependent .....	(5)1421, 1428
— statistical distribution .....	(2)340	Wüster salts from antiozonants .....	(5)1584
— variability of SBR .....	(3)712	Zinc oxide, effect on EPT stability ..	(4-2)1347

